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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,234	05/31/2005	Hae Young Kim	LEE-0024	6371
23413	7590	11/28/2006	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			BERNSHTEYN, MICHAEL	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 11/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/537,234

Applicant(s)

KIM ET AL.

Examiner

Michael Bernshteyn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action follows a response filed on September 11, 2006. No claims have been amended, cancelled or added.
2. Claims 1-18 are pending.

Claim Rejections - 35 USC § 103

3. The test of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.
4. Claims 1-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshino et al. (JP 05-074461) in view of Noritaki et al. (JP 10-302797), for the rationale recited in Office Action dated on June 9, 2006.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3 and 16-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over KP 2000-0075953 (KP'953).

KP'953 discloses a binder for cells containing particles of composite polymer such that two or more polymers having different chemical structures form a heterogeneous phase structure. Preferably the polymers include polymers having glass

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transition temperature (T_g) different from each other by 5°C or more. When slurry prepared by mixing the binder with a liquid material, and an active material is used for the manufacture of the electrode of a secondary cell, especially, a lithium secondary cell, the performance of the cell is improved because the slurry imparts a well-balanced binding power and a binding persistence (abstract).

With regard to the limitations of instant claim 1, KP'953 does not disclose cell property, adhesive strength and/or coating property. However, in view of substantially identical binder composition between KP'953 and instant claims, it is the examiner position that KP'953's binder composition comprising particles of composite polymer such that two or more polymers having different chemical structures from a heterogeneous phase structure, inherently possesses these properties. Since the USPTO does not have equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise. *In re Fitzgerald* 619 F 2d 67, 70, 205 USPQ 594, 596 (CCPA 1980).

Response to Arguments

6. Applicants traverse the rejection under 35 U.S.C. § 103(a) of claims 1-18 as being unpatentable over Yoshino et al. (JP 05-074461) in view of Noritaki et al. (JP 10-302797). Applicant's arguments have been fully considered but they are not persuasive.
7. Applicants contend that the primary feature of the novel technology according to the present invention lies in that general monomers, which form a binder polymer, are divided into monomers capable of controlling the cell property, monomers capable of

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controlling the adhesive strength, and monomers capable of simultaneously controlling the adhesive strength and the coating property. Another feature lies in that (a') a polymer capable of controlling the cell property, (b') a polymer capable of controlling the adhesive strength, and (c') a polymer capable of simultaneously controlling the adhesive strength and the coating property are polymerized separately from the monomers divided as described above so as to provide the binder for battery comprising composite polymer particles having the structure formed of two or more different phases (pages 6 and 7, the bridging paragraph).

Applicants contend that Yoshino fails to disclose or teach separate copolymerization of monomers capable of controlling the cell property, monomers capable of controlling the adhesive strength, and monomers capable of simultaneously controlling the adhesive strength and the coating property. The examples of Yoshino disclose preparing a binder comprising a single polymer prepared by polymerizing monomers by use of only one step, rather than polymerizing the detailed structure of the binder capable of controlling the cell property, adhesive strength and coating property by use of two or more separate steps (page 7, 2nd paragraph).

Applicants contend that Noritaki fails to disclose or teach a polymer or polymer system in which the constituent monomers are divided and separately copolymerized to control the cell property, the adhesive strength, and simultaneously the adhesive strength and the coating property, as claimed in instant claim 1 (pages 7 and 8, the bridging paragraphs).

8. It is noted that instant claim 1 does not contain any specific limitations of the cell property, the adhesive strength, and the coating property. Therefore, it is impossible to present “unexpectedly beneficial properties” (see page 8, 2nd paragraph) because it is not clear which exactly values of the above mentioned properties are superior or beneficial.

With regard to the limitation of instant claims 1-3, Yoshino discloses a secondary battery negative electrode using a carbonaceous material as negative electrode active material. In the negative electrode the negative electrode active material is bonded by a binder composed mainly of styrene-butadiene latex having a butadiene content of 40 to 95-wt% and a gel content of 75 to 100% (abstract). Yoshino does not disclose that the polymer particles have structured form of two or more phases having different physical properties.

Noritake discloses that the electrode binder for batteries contains a copolymer produced by polymerization of monomer units. The electrode binder contains particles having core-shell structure of which the core is made of a (co)polymer having glass transition temperature in the range $-100-0^{\circ}\text{C}$, and of which the shell is made of a (co)polymer with glass transition temperature in the $-5-50^{\circ}\text{C}$ (abstract)

Both references are analogous art because they are from the same field of endeavor concerning new polymer binders for lithium secondary battery.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to blend the polymer with core-shell structure of two phases having different physical properties as taught by Noritake with Yoshino's

polymer binder composition in order to obtain an electrode binder for secondary batteries which provides high capacity, high charging performance, excellent charging and discharging cycle property and safety, and, for specifically, with which electrode activation material is retained on an electric collector material (JP'797, abstract), and thus to arrive at the subject matter of instant claim 1 and dependable claims 2-3. It is reasonable to expect that in this case the cell property, adhesive strength and/or coating property have to be met.

With regard to the limitation of instant claims 4-11, Yoshino discloses that other than styrene/butadiene monomers can be used, for example ethylene nature unsaturated carboxylic acid, such as acrylic acid, methacrylic acid, itaconic acid, fumaric acid, and maleic acid; esters of unsaturated carboxylic acids, such as methyl methacrylate, ethyl methacrylate, butyl methacrylate, acrylonitrile and hydroxyethyl methacrylate. It is desirable to use dicarboxylic acid, such as itaconic acid, fumaric acid, and maleic acid with respect to the bond strength of an electrode. General approaches, such as adjustments of polymerization temperature, the amounts of polymerization initiators and chain transfer agents can be made (page 2, [0016]). These groups of the monomers are readable as monomers (a) (b) and (c) in the instant claims.

Yoshino discloses that the final composition has good cell property, adhesive strength and coating property (JP'461, pages 2 and 3, [0009], [0019], [0020], [0026 and [0027]).

9. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections

are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

10. It is worth to mention that Examiner has cited particular columns and line numbers or figures in the references as applied to the claims for the convenience of the applicant. Although the specified citations are representative of the teaching in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, **to fully consider the references in entirety as potentially teaching all or part of the claimed invention**, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

11. In the light of the discussion above, the rejection of record has not been withdrawn. The rejection remains in force.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

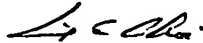
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Bernshteyn
Patent Examiner
Art Unit 1713

MB
11/15/2006


LING-SUI CHOI
PRIMARY EXAMINER